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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,583	06/25/2007	Katsuaki Suzuki	YH0028-US1	8731
27788 7590 09/08/2009 Tyco Electronics Corporation 309 Constitution Drive Mail Stop R34/2A Menlo Park, CA 94025				
EXAMINER				
FISHMAN, MARINA				
ART UNIT		PAPER NUMBER		
2833				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/588,583

**Applicant(s)**

SUZUKI, KATSUAKI

**Examiner**

Marina Fishman

**Art Unit**

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-17 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 04 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/CIS)  
Paper No(s)/Mail Date 06/25/2007  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***General status***

1. This is a First Action on the Merits. Claims 1 - 17 are pending in the case and are being examined.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "spacer", recited in Claim 6, must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities:
  - a. The subtitles in the specification are not in accordance with U.S. practice (see suggestions below).
  - b. Page, 4, paragraph 0004, the first occurrence of abbreviation PTC (in the spec. and in the claims) should be coupled with an expanded form, (such as given in paragraph 0005).
  - c. Reference to "Patent Literature 1" should be identified with proper document number or title.
  - d. In paragraph 5, the second sentence is unclear and therefore "The PTC material has its electric resistance (or an impedance) at a relatively low under a relatively low temperature condition (e.g. an ordinary or room temperature), but show a steep increase in the electric resistance on exceeding a certain temperature (hereinafter referred to as a trip temperature)", should apparently be changed to --The PTC material has low [its] electric resistance (or an impedance) at [a relatively low under] a relatively low temperature condition (e.g. an ordinary or room temperature), but show a steep increase in the electric resistance on exceeding a certain temperature (hereinafter referred to as a trip temperature).--

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 – 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 1 and 2, recites “at least two terminals” and Claim 7, line 2, recites “a first, a second, and a third terminal.” It is not clear if “a first, a second, and a third terminal,” recited in Claim 7, are in addition to the “at least two terminals” recited in Claim 1. Claim 13, in lines 1 and 2, recites “a first, a second, and a third terminal.” It is not clear if “a first, a second, and a third terminal”, recited in Claim 13, are in addition to “at least two terminals,” recited in Claim 1.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingo et al. [US 4,833,280] in view of Baur [US 5,473,495].

Regarding Claims 1, 2, 8, 9, and 14 -17, Bingo et al. [Figures 2 and 9] disclose a switch comprising:

- a conductive movable member [5];
- at least two terminals [9a, 9b, 9c, column 13, lines 26 +] and being switchable by mechanically moving the movable member between a state in which the movable member contacts with the two

terminals simultaneously and a state in which the movable member is apart from either one of the two terminals, wherein at least one of the two terminals comprises a conductive contact part [8a, 8b, 8c] for contacting with the movable member, a conductive connect part [respective vertical legs of 9a, 9b, 9c] for being electrically connected with an external element [9a, 9b, 9c].

Regarding Claims 1, 2, 8, 9, and 14 -17, Bingo et al. disclose the instant claimed invention, except for a polymer PTC member located between the contact part and the connect part. Baur [Figure 1] discloses a polymer PTC member [15] located between the contact part [16, 17] and the connect part 14]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a polymer PTC member located between the contact part and the connect part in Bingo et al., as suggested by Baur, in order to limit the current passing through the polymer PTC member and the connect part at higher current level [Baur, column 1, lines 37- 47].

Regarding Claims 3 and 10, Bingo et al. disclose the switch that can be directly mounted on a circuit board [column 1, lines 12-15], which is taken as a substrate. Also, surfaces of terminal portions in contact with the PTC material, disclosed by Baur, is taken as conductive material layer, hence the switch of Bingo modified by Baur would have this feature. Regarding Claims 5 and 12, the width of PTC material disclosed by Baur is perpendicular to the longitudinal extent of the terminal and hence for modified switch of Bingo, width of PTC material would be parallel to the substrate. Regarding Claims 4 and 11, the height of PTC material disclosed by Baur is perpendicular to the

longitudinal extent of the terminal and hence for modified switch of Bingo, height of PTC material would be perpendicular to the substrate. Regarding Claim 7 and 13, Bingo et al. disclose an embodiment of Figure 8, which has three terminals, and satisfies the limitations of Claims 7 and 13. Regarding Claim 6, Bingo et al. and Baur disclose the instant claimed invention except for PTC material layer retained between the contact part and the connect part with a spacer. The use of a spacer, absent any criticality, is considered to be nothing more than a choice of engineering skill, choice of design because 1) neither non-obvious nor unexpected results, i.e., results which are different in kind and not in degree from the results of the prior art, will be obtained as long the PTC material can be retained between the contact part and the connect part, 2) the retaining arrangement claimed by the Applicant and that disclosed by Bingo and Baur are alternate types of retaining arrangements, which will perform the same function, if one is replaced with the other, and 3) the use of the spacer arrangement by Applicant is considered to be nothing more than the use of one of numerous and well known alternate types retaining arrangement, that a person having ordinary skill in the art would have been able to provide using routine experimentation in order to retain the PTC material. The motivation to add the spacer between the contact and the connect parts would be to reduce mechanical load on the PTC material.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Fishman whose telephone number is (571)272-1991. The examiner can normally be reached on 5:30 - 4:00 M-T.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee S. Luebke can be reached on 571-272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marina Fishman/  
Examiner, Art Unit 2833  
September 1, 2009

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